REMARKS

The specification and claims have been amended to place the application in condition for allowance. The amendments are discussed below.

The specification has been amended to more clearly overcome the rejection thereof under 35 USC 112, first paragraph. In support of this rejection, the breadth of the disclosure is cited. The specific amendments of the specification are discussed below.

The specification has been amended to delete reference to the fiber and hollow fiber embodiments, as well as the woven and non-woven fabric embodiments shown in Figs. 4 through 6. Accordingly, a copy of the drawings with proposed changes marked in red together with the drawing sheets showing the changes are submitted. The changes comprise deletion of Figs. 4 to 6 and renumbering of Figs. 7 to 9A as Figs. 4 to 6A. Accordingly, the foregoing amendments are responsive to rejections based upon the mere breadth of the disclosure and any ambiguities arising therefrom.

In any case, the Summary of the Invention specifically and immediately directs one skilled in the art to the layer indicator and ink composition embodiments incorporating pH indicating agents and fluid regulating additives. To that end, the first paragraph of the Summary of the Invention provides:

It has now been discovered that pH indicating agents may be used more effectively with fluid regulation or control in single layer or multiple layer wetness indicators within a desired timeframe of use. Fluid control may be used to promote or to inhibit fluid contact with the pH indicating agent as well as to limit the diffusion of the latter.

It is further provided at page 3, lines 6 to 21 that:

The invention contemplates a controlled pathway for fluid which comprises moisture and/or other pH contributing species ... to be transported to the surface of the indicating layer or into its body for indication. ... A pathway for indicating agent back into the environment may also result as a consequence of creating this pathway for moisture into the indicator body. A preferred embodiment would be the use of barrier layers or fluid regulating additives that are moisture absorbing or transmitting resins, which allow for transmitting moisture in one direction but also prevent bleed in the reverse direction within the contemplated fluid regulation herein.

In the foregoing manner, one skilled in the art is immediately directed to the preferred embodiments of the present invention utilizing layered composites including barrier layers, pH indicating agents and fluid regulating additives "to promote or to inhibit fluid contact with the pH indicating agent as well as to limit the diffusion of the latter." Of course, ink compositions containing the pertinent constituents are also disclosed.

Turning to the illustrated embodiments, the advantages of fluid regulating additives are described in the paragraph bridging pages 10 and 11. It is there provided at page 11, lines 7 to 10:

> Further, the use of a fluid barrier layer or moisture transmitting resins such as ZEOLUM reduce the bleed of indicator into the environment by providing hindrance to the migration of the agent.

Thereafter, multiple layer indicators are shown in Figs. 2 and 3. More particularly, a fluid barrier layer such as the layer 22 in Fig. 2 may rely upon fluid regulating additives as described at pages 11 and 12 or the microporosity of the barrier layer itself as in layer 32 in Fig. 3 as described at pages 12 and 13. In all cases, varying degrees of fluid transmission may be achieved via additives, microporosity or both.

In the action, the Examiner specifically urges that "fluid barrier layers" which are not permeable to the fluid to be detected are not enabled. One skilled in the art would know that such an arrangement merely limits fluid contact and penetration to a selected surface portion, which may be an edge portion, of the layer containing the pH indicating agent.

For example, assuming the barrier layers 22 and 32 in Figs. 2 and 3 to be impermeable, fluid contact and penetration is limited to the four exposed edges (top, bottom and opposed side edges) of each of the layers 24 and 30 as shown in the figures. Similarly, assuming the barrier layer 72 to be impermeable in the embodiment of Figs. 8 and 9, the four edges of the indication layer 74 would still be exposed to the fluid environment of the diaper 80. It is obvious that if there was absolutely no fluid contact with the second ink layer containing the pH indicating agent, indication would not be possible and the composite would not be a wetness indicator.

In claim 35, the function of the first ink layer is particularly clarified as follows:

> "said first ink layer being disposed between said environment and said second ink layer to control fluid contact with at least a portion of the second ink layer,".

The amended language leaves no doubt as to the function of the applied first ink layer to control the fluid contact with at least a portion of the second ink layer generally corresponding with the applied area. More particularly, the controlled fluid contact portion corresponds with the area of the second ink layer to which the first ink layer is applied. This is true in the case of both permeable and impermeable first ink layers.

Thus, one skilled in the art is directed to the claimed invention by both the generic disclosure and the description of the illustrated embodiments. In addition, preferences are identified in the specification including, for example, the use of zeolites to provide fluid in-flow transmission and to restrict outflow or bleed of the pH indicating agent.

Fluid regulating additives are broadly disclosed in the paragraph bridging pages 4 and 5 of the specification. The zeolites are described in detail in this paragraph including the desired control of fluid flow and pH indicating agent through pore size as follows:

> Synthetic zeolites such as Zeolum Series by Tosch may be used. Zeolites with controlled pore size openings have an added benefit of acting as barriers that allow the forward flow

of moisture due to the smaller molecular size of water into the indicator while obstructing the reverse flow of pH indicating agents (larger molecular size) back into the environment.

This discussion continues in the following paragraph at page 4, lines 4-8, as follows:

As noted above, preferred embodiments of the invention contemplate fluid regulation including fluid transmission to the pH indicating agent and inhibiting of bleed of the agent into the fluid. Zeolites with selected pore opening sizes allow for both mechanisms.

Again, one skilled in the art is directed to the fluid barriers and the fluid regulating additives, especially, zeolites with selected pore opening sizes to allow fluid in-flow and to prevent pH indicating agent out-flow or bleed.

The specification as filed enables one skilled in the art to make and use the invention in its best mode. The amendments of the specification herein further restrict the breadth of the disclosure so as to more clearly overcome any ambiguities in the specification perceived by the Examiner to prevent one skilled in the art from identifying and practicing the preferred embodiments and best mode. For the foregoing reasons,

the rejection under 35 USC 112, first paragraph is overcome.

The claims have also been amended to overcome the rejection under 35 USC 112, second paragraph as being indefinite. Each of the rejections raised by the Examiner is discussed below.

Claim 35 has been amended to clarify the first and second ink layers and their respective functions. Accordingly, the rejections based on these recitations are overcome.

The broad spectrum of fluid regulating agents useful in the claimed invention are not indefinite, but rather, are clearly and precisely identified. A claim which is understandable and which defines the subject matter which applicant regards, as his invention, meets the requirements of 35 USC 112, second paragraph. Accordingly, rejection under 35 USC 112, second paragraph is improper. To the extent that the Examiner questions the operability of the fluid regulating additives, the challenge as to the clay additive is totally unfounded. As the Examiner is well aware, clays are used in relatively thin paper materials to provide a suitable writing surface with the retention of the required flexibility. As to the incorporation of the additives in a polymer, US patent 4,036,360 cited by the Examiner teaches a like broad range of additives in the polymer

matrix of a flexible polymer film having an elongation of 200%. The incorporation of pertinent additives into a polymer, albeit for a different purpose, is thereby shown to be within the skill in the art. Accordingly, the rejection based on the recited fluid regulating materials is in error and should be withdrawn.

Claim 46 does not recite that the pH indicator is dry. For further clarity, the claim recitations relative to bleed have been amended to refer to "said pH indicating agent contacted by said fluid". This amendment overcomes the rejection of claim 46.

Claim 47 has been amended to clarify the relationship between the ink composition and the resulting cured or dried ink layer. That is, the preamble of claim 47 now provides:

> A wetness indicating ink <u>for forming a cured or dried ink layer to be disposed in an environment to monitor the presence of a fluid in the environment,</u> .

This amendment is responsive to and overcomes the basis urged in support of the rejection since the amount of zeolite in the ink composition must be adequate to provide transmission of fluid from the environment to the pH indicating agent in the cured or dried ink layer.

The rejections of claims 48 and 49 are moot in view of the cancellation of these claims.

For all of the foregoing reasons, is respectfully submitted that the rejection of the claims under 35 USC 112, second paragraph, is overcome and should be withdrawn.

The rejection of claims 35, 43 and 46 under 35 USC 102(b)as being anticipated by Allan et al. is in error and, in any event, overcome by amendment. This is discussed below detail.

Initially, it is urged that Allan et al. do not teach or suggest the claimed ink layers. The publication teaches a construction, such as a diaper, including two superabsorbent polymers segregated or intermixed in a desired distribution. One or both of the polymers may include a latent indicator that is activated to determine the achievement and/or quality of the desired distribution of polymers. Accordingly, there's no disclosure of the claimed ink layers as set forth in claim 35.

Allan et al. do not disclose the claimed wetness indicator comprising "a multiple layer composite of a first ink layer applied to a second layer".

Allan et al. do not teach: "said first ink layer being disposed between said environment and said second ink layer to control fluid contact with at least a portion of the second ink layer". Allan et al. teach detection of distribution of the polymers and do not

therefore teach any barrier disposed between the environment and the pH indicating agent so as to control or otherwise alter fluid contact with the latter. Clearly, such an arrangement would not enable the desired detection of distribution in Allan et al.

Further, the wetness indicator in claim 46 is now defined with particularity to the zeolite additive "having a pore size that allows the flow of fluid therethrough but obstructs the flow of said pH indicating agent contacted by said fluid". The advantages of pore size selection to achieve dual flow mechanisms distinguishes zeolites from mere water absorbing compounds or desiccants. Allan et al. do not disclose a zeolite additive nor the claimed zeolite pore opening size to achieve dual flow control in respect to fluid and pH indicating agent.

Allan et al. do not disclose the claimed multiple layer construction as noted above and, therefore, also fail to disclose the additional layer details set forth in claims 51 through 59.

•For example, Allan et al. do not disclose an impermeable first ink layer as set forth in claim 51, a microporous first ink layer as set forth in claim 52 or first and second ink layers both containing fluid regulating additive as set forth in claim 53.

•Similarly, Allan et al. do not disclose an ink layer that is a substantially continuous film of polymer containing pH indicating agent and fluid regulating additive dispersed therein as set forth in claim 54.

•Allan et al. do not disclose ink layers of the recited weight and thickness set forth in claim 55 nor the percentage of pH indicating agent in the second ink layer as set forth in claim 56.

•Allan et al. do not disclose the zeolite pore opening size that restricts passage of a molecule larger then a water molecule as set forth in claim 57.

•Allan et al. do not disclose the combination the foregoing features presented in claims 54, 55, 56 and 57, as set forth in combination in claims 58 and 59.

The rejection of Claims 47, 48 and 50 under 35 USC 102(b) as anticipated by JP 6017683A or JP 0503434334A as evidenced by US patent 4,036,360 to Deffeyes is in error and should be withdrawn. Both Japanese patents disclose the use of a "water absorbing powder". Claim 47 has been limited to a zeolite fluid regulating additive which is not a water absorbing powder. The prior art water absorbing powders have an affinity for water and act via solvation without molecule size discrimination. The water absorbing powders are thereby distinguished from zeolites that are three dimensional structures and operate as sieves to enable molecule size discrimination.

The molecule size discrimination effects of zeolites is exactly what favors their use in the claimed ink. That is, the claimed zeolite has a pore opening size selected to effect fluid transmission and prevent pH indicating agent bleed based upon molecule size discrimination. The required molecule size discrimination is not provided by the water absorbing powders of the prior art.

Deffeyes can not cure the foregoing deficiencies of the Japanese references since Deffeyes is directed to a desiccant. There is no motivation to combine the teachings of Deffeyes with those of the Japanese patents.

For all of the foregoing reasons, all of the claims of record are in condition for allowance and such action is requested.

If there are any fees required by this communication, please charge the same to Deposit Account No. 16-0820, Order No. 36554US1.

Respectfully submitted,

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AMENDMENTS TO THE DRAWINGS:

The attached sheets of drawing include changes to FIGS. 1 - 9A. These sheets, which include FIGS. 1 - 9A replace the original sheets including FIGS. 1 - 9A.

The specific changes to the drawings are:

Original FIGS. 4 - 6 have been deleted; original FIGS. 7 - 9A have been renumbered as FIGS. 4 - 6A.

Attachments: Replacement Sheets;
Annotated Sheets Showing Changes.

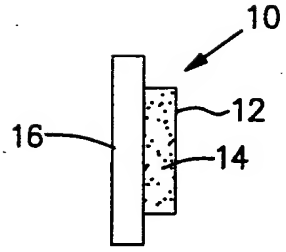

FIG. 1

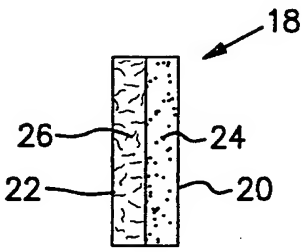

FIG. 2

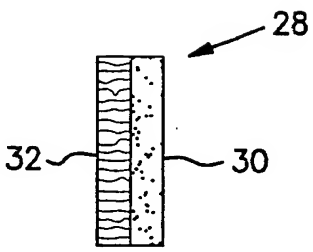

FIG. 3

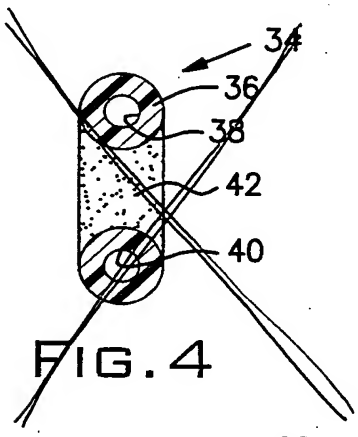

FIG. 4

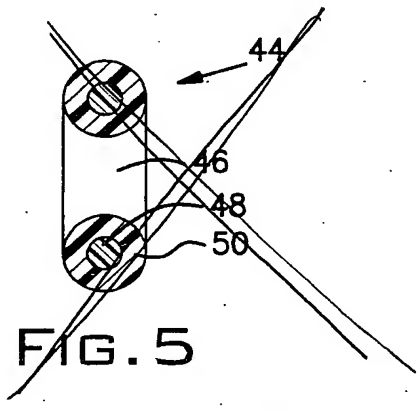

FIG. 5

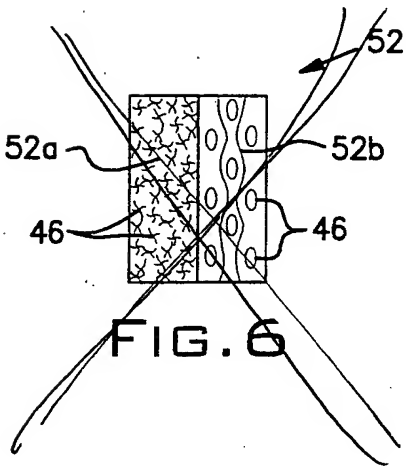

FIG. 6

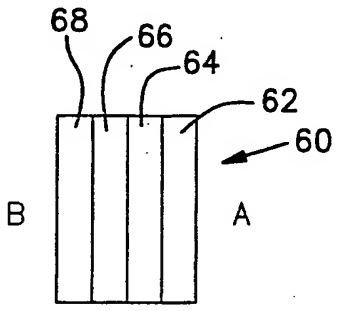

FIG. 4

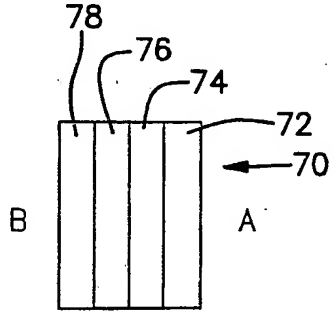

FIG. 5

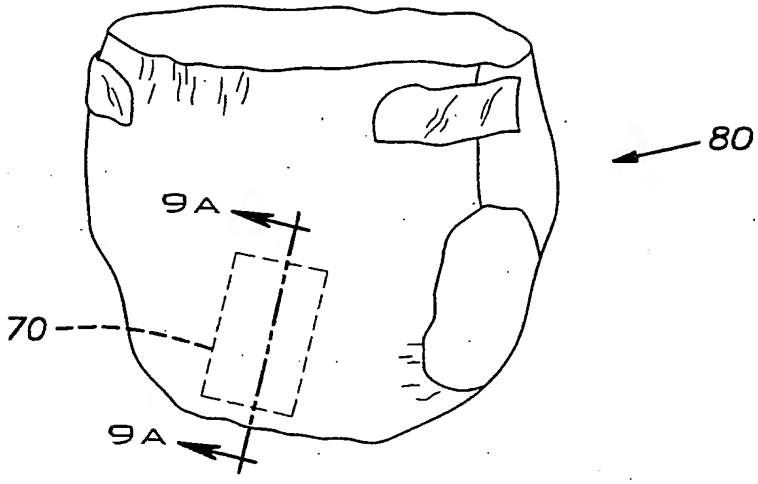

FIG. 9B

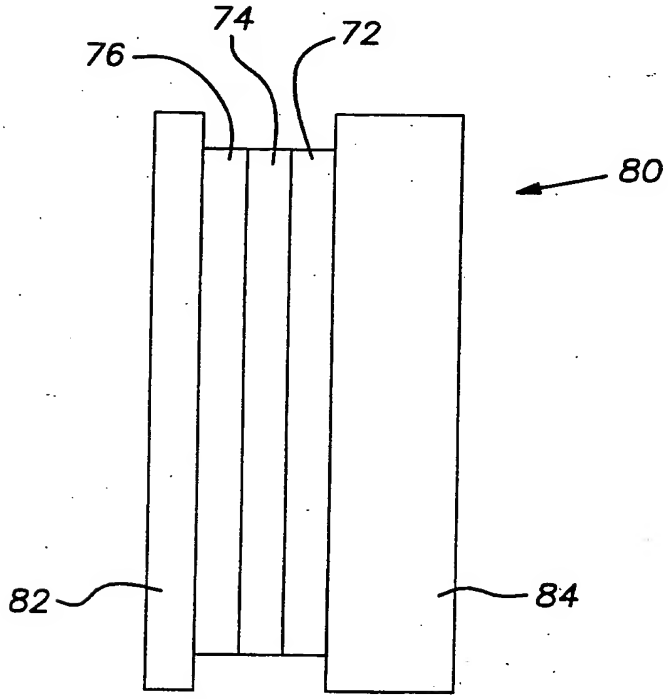

FIG. 9A